

## **ABSTRACT**

A method and system to produce a spectrally filtered ultra wideband (UWB) signal preferably utilizing a singly terminated filter having an input section and a current switching device directly coupled to the input section. The switching device is operated in a highly nonlinear manner such that an impulse of energy excites the filter in such a way that a vast majority of impulse energy is transmitted to an antenna after spectral filtering thereby yielding a highly efficient, broadband (e.g., ultra wideband) transmission. A substantial fraction of the current switched into the filter passes directly to the antenna. Optionally, the input section of the filter possesses a secondary resonance and the current switching device has a conduction time chosen to be compatible with the secondary resonance.